

Sabrina Taylor,
Assistant Professor



Dr. Taylor is a new assistant professor in the SRNR specializing in the field of Conservation Genetics. Her research interests include: 1) the relationship between genetic variation and fitness in individuals, and 2) the population structure of threatened species, especially studies that use vintage DNA to examine historical structure prior to population bottlenecks. She also likes to participate in behavioral ecology studies that have a genetic aspect, for example studies that use genetic data to assess inbreeding avoidance and extra-pair paternity.

She is currently working on three collaborative projects. The first examines whether genetic variation in Arctic Peary caribou is lost more quickly at functional genes than at neutral “junk” sequences, the sequences that are typically used to measure genetic variation. If functional genes maintain genetic variation and neutral sequences do not, then accurate measures of genetic variation should probably include functional genes. This project uses museum DNA to determine baseline levels of genetic variation prior to population bottlenecks – luckily, Captain Robert Peary collected hundreds of Peary caribou in the early 1900s and deposited them in the American Museum of Natural History.

The second project is part of a 35-year study on song sparrows, a particularly useful data set for in-depth genetic studies because it contains complete sparrow pedigrees. The project is focusing on a comparison of genetic variation between unhatched eggs and hatched nestmates to assess whether individual genetic variation affects survivorship when inbreeding is controlled. Analyses are underway, and future work will likely involve assessment of variation-fitness relationships based on functional genes.

The last project will examine population structure and assisted migration in New Zealand rock wren. In New Zealand, most threatened species are translocated to offshore islands to protect them from introduced predators. However, rock wrens are restricted to alpine areas and there is insufficient alpine habitat on offshore islands to provide an adequate sanctuary. This problem is compounded by global warming, which

is decreasing the amount of alpine habitat available on the mainland (the treeline is rising with increasing temperature). Sabrina and her collaborators propose to examine population structure and explore the possibility of moving low elevation populations to extensive high elevation areas in combination with predator control in those areas.

Dr. Taylor is excited about establishing her research program in Louisiana, and would like to begin with studies examining the population structure and dispersal capability in threatened gopher tortoises, as well as other species such as raptors and snakes that are hard to catch or have a low density, but which are commonly brought in for rehabilitation.